

Abstract View

THE EFFECTS OF ACUTE METHYLPHENIDATE ON CONDITION POSITION RESPONDING (VISUAL POSITION DISCRIMINATION) IN SHR AND WKY RATS[L.A.Pena^{1*}](#); [C.Reiszel¹](#); [A.D.Drepanis¹](#); [N.D.Volkow²](#); [P.K.Thanos^{1,2}](#)*1. Medical Dept., Brookhaven National Laboratory, Upton, NY, USA**2. Lab of Neuroimaging, NIAAA/NIH, Bethesda, MD, USA*

Previous studies have examined visual discrimination tasks as a sustained attention task that signals a specific response and considers a variety of important parameters such as % correct responses, % errors and latency to respond to different visual cues varying in duration (Himmelbemer et al. 1997). Damos & Parker (1994) showed that high degree of % errors (false alarm responses, which may indicate impulsivity) could indicate recreational drug use in humans. For instance, ecstasy users performed poorly when compared to non-users in attention & memory-learning tasks (Gouzoulis et al. 2000). Cocaine has also been shown to have properties on sustained attention processing in children prenatally exposed to cocaine (Bandstra et al. 2001). Methylphenidate (MP) has been shown to improve % correct responses in children tested on a visual sustained attention tasks (Jonkman et al. 1997). In the rodent literature, condition position responding (CPR) (a discrimination task), MP had similar effects to d-amphetamine (Mayorga et al. 2000) and cocaine, which increased accuracy in rats during a sustained attention task (Grilly et al. 1989).

In the current study we assessed the effects MP (1, 2, 5 and 10 mg/kg ip) on the visual position discrimination (VPD) task using spontaneously hypertensive (SHR) and Wistar (WKY) rats. SHR rats are an excellent rodent model for ADHD because they have behavioral and neurochemical characteristics similar to ADHD. Adult male SHR (n=18) and Wistar (n=18) rats were tested in the VPD task [using 2 cue lights, four shaping cue-light intervals (1s, 500 ms, 300 ms, and 100 ms)] and after baseline criteria of >80% correct responses (@1s interval) and >60% correct responses (@100ms) was achieved they were exposed to MP (1-10mg/kg) or vehicle for 3 consecutive days, separated by 3 days vehicle, in a latin-square design.

Support Contributed By: This work was supported by the NIAAA, NIDA & the US Department of Energy DE-AC02-98CH10886



Citation: L.A. Pena, C. Reiszel, A.D. Drepanis, N.D. Volkow, P.K. Thanos. THE EFFECTS OF ACUTE METHYLPHENIDATE ON CONDITION POSITION RESPONDING (VISUAL POSITION DISCRIMINATION) IN SHR AND WKY RATS Program No. 795.13. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2005. Online.

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